

# Design-Build – Streamlining Project Delivery

— By Susan Hines

Once considered an “alternative” project delivery method, design-build is rapidly becoming mainstream. Design-build is an integrated approach that delivers design and construction services under one contract with a single point of responsibility. Design-build is transforming our industry by introducing a better way to provide A/E/C services in a manner that readily leverages job-specific products and systems, such as precast concrete.

Established in 1993, the Design-Build Institute of America (DBIA) is the only organization that defines, teaches, and promotes best practices in design-build—what we call “design-build done right.” Knowledge of DBIA best practices is especially crucial as design-build is becoming more common. While DBIA and its owner and practitioner members knew this project delivery method was gaining traction, the evidence was purely anecdotal until June 2011, when the Design-Build Institute of America’s Reed Construction Data (RCD)/RSMeans Market Intelli-

gence study was released and showed more than 40 percent market share for design-build, with steady growth of the delivery method since 2005.

The RCD/RSMeans study cast a wide net and was based on information about actual vertical construction projects over the past five years. Detailed data on nearly 1,000,000 construction projects, 300,000 plans and specifications, historical and current material and labor construction costs, and historical and projected demographic data was integrated for valid comparisons. The research team estimates that 95 percent of public projects and 75 percent of private projects were captured for the purposes of this analysis.

While the use of design-build in horizontal/heavy civil construction was not included in this study, the number of states authorizing the use of design-build for both water/wastewater and transportation projects has surged over the past three years. For example, today 46 states allow design-build project delivery for transportation to some degree. Last year, both New York and Ohio, states that once staunchly resisted design-build procurement, finally approved its use by their agencies. Ohio, in fact, is allowing all state agencies to use design-build.

Although New York limited the use of design-build to just five agencies, its initial foray into design-build will be one of the largest design-build projects procured thus far: The replacement of the Tappan Zee Bridge. The Tappan Zee spans the Hudson River at one of its widest points as it carries traffic across the river just north of New York City.

## The Design-Build Advantage

Design-build is a project delivery method that works for everyone. Design-build streamlines project delivery through a single contract between the owner and the design-build team. This simple but fundamental difference saves money and time by transforming the relationship between designers and builders into an alliance which fosters collaboration and teamwork. United from the outset of every project, an integrated team readily responds to both the owner’s requirements and those of other team members.

Design-build (DB), design-bid-build (DBB), and construction management (CM) are the three project delivery systems most commonly employed in North America. Under the traditional methods, design-bid-build, in particular, owners contract separately with design and construction firms, with the construction contract frequently going to the lowest bidder. Some problems that may ensue when designers and construction firms work in silos include cost and schedule overruns, change orders, finger pointing, and, unfortunately, litigation.

The advantages of design-build over other construction methods have been quantified. An independent Construction Industry Institute/Pennsylvania State University survey evaluated all three project-delivery systems and found that design-build projects:

- Cost at least 6% less than DBB and 4.5% less than CM.
- Were constructed at least 12% faster than DBB and 7% faster than CM.
- Delivered 33% faster than DBB and at least 23% faster than CM.



— Susan Hines is DBIA’s managing director of public relations and information. She came to DBIA in 2009 from the nationally known landscape architecture firm Oehme Van Sweden & Associates. Prior to that, she spent seven years at the American Society of Landscape Architects (ASLA), first

serving as founding editor of the e-newsletter LAND Online, and later, working as a staff writer/editor at Landscape Architecture magazine.

- Achieved highest owner-satisfaction ranking.

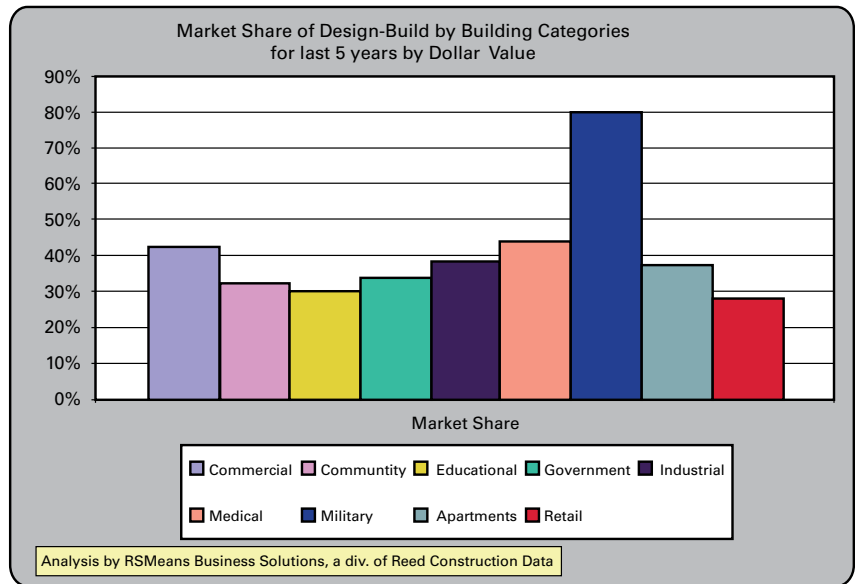
Other research - such as a Charles Pankow Foundation study to determine the effect of project delivery methods on achieving higher performing, sustainable buildings - shows that integrated delivery methods such as design-build, are superior in achieving or exceeding Leadership in Energy and Environmental Design (LEED®) certification goals. In the area of construction litigation, a Victor O. Schinnerer benchmarking and claims study shows that from 2001-2010, only 3 percent of claims against A/E firms brought by construction entities were made by design-build contractors while 76 percent of claims against design professionals originated from general contractors working within a design-bid-build framework.

Design-build practitioners, whether GCs, designers, or specialty contractors will tell you that the benefits of design-build project delivery include a higher profit margin (since an integrated team is fully and equally committed to controlling cost) and a significantly decreased administrative burden. Design-build also streamlines communication between designers and builders, which is key to controlling costs, maintaining schedules, and preventing change orders.

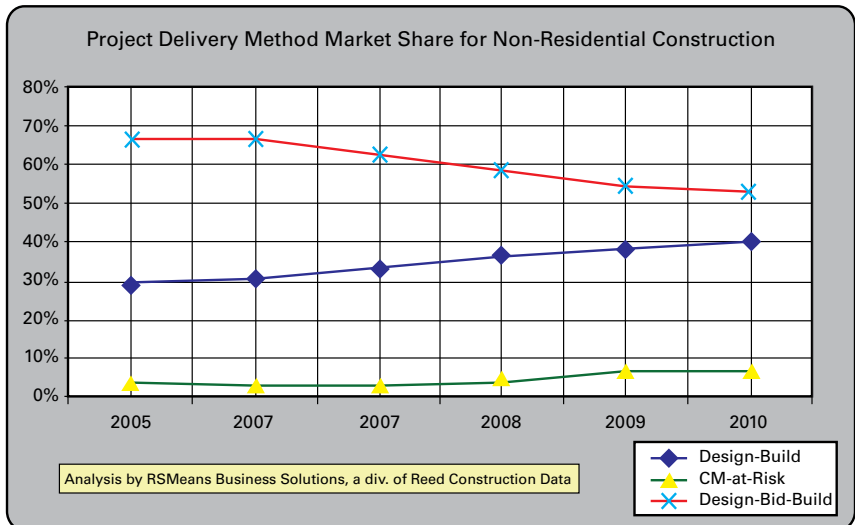
Design-build is not just a tweaking of design-bid-build: It is inherently different and requires a shift from a segregated mentality to an integrated mentality, as well as a thorough understanding of contractual obligations, and procurement processes.

Practitioners learn the risks, rewards, and best practices associated with single responsibility contracting. For example, design-build transfers much of the risk associated with the project and the responsibility of managing it, to those better prepared to succeed. Design management and design control are major risks associated with every construction project. Typically, the following risks are identified with the design: contractual performance guarantees, functional failure of the design, shop drawing reviews and analysis, coordination of plans and specs, and satisfaction of permitting requirements.

Under a traditional design-bid-build framework, the designers work directly for the owner and their performance is warranted by the owner. In design-build project delivery, the



This bar graph from a June, 2011, RSMMeans/Reed Construction Data report shows the use of design-build is increasing across all non-residential sectors.



The use of design-build rose steadily between 2005 and 2010, while the use of traditional design-bid-build has declined.

designers' performance is warranted by the design-builder. When one entity is responsible for conformance to design, cost, and schedule, there is no incentive to blame others for errors, overruns, and other shortcomings. The focus shifts to fixing the problem so that the project can move forward on schedule.

DBIA has also identified the attitudes and values that—if held in common—facilitate integration on a design-build team. These include belief in interdisciplinary fluency, communication, full disclosure and transparency, and benefits of cultivating an environment of trust. But the foundation for these behavioral expectations remains the design-build contract that links the team to one another and pro-

vides a single point of responsibility for the owner they serve.

### Design-build and the Precast Industry

Innovation is a hallmark of design-build, so it is not surprising that design-build teams are eager to embrace products and services that enhance value for the owner while streamlining sequencing and delivery. Because of its versatility, quality, and minimal impact on construction sites, precast concrete frequently plays a major role on design-build projects in every sector and precast manufacturers are often considered key team members.

Consider just one example from the DBIA 2011 National Project



The lobby and reception area of the Rolls Royce Crosspointe Rotatives Facility, in Prince George, VA, are shown, above. Photo by Haskell, courtesy DBIA.

awards: Anderson Athletic & Recreation Complex at the University of St. Thomas in St. Paul, Minn. This 180,000square-foot facility houses major athletic venues and a three-story office/classroom space. Athletic venues include a basketball/volleyball arena, aquatic center, field house, cardio/weight rooms, locker rooms, and training facilities. Opus Design Build LLC, used a variety of precast concrete elements in the construction of this state-of-the-art Division III athletic facility.

Load bearing precast concrete wall panels supporting long span roof

joists were the primary structure in the athletic venues (arena, aquatic center, and field house) in order to eliminate perimeter columns and provide a clear interior wall surface. In addition to the aesthetic and practical advantages, the erection of the precast wall panels was much faster than a traditional structural steel system.

Lifecycle costs can also be an important consideration for owners, especially long-term owners like universities. The University of Houston's new state-of-the-art housing complex, Cougar Village, is a seven-story 291,000square-footfacility that

houses 1,132 freshman students. In this case, the design-build team suggested using insulated precast concrete panels as part of the structure. Although there was a slightly higher first cost relative to traditional construction, a tighter building envelope, more rapid construction, fewer trades and general conditions costs all led to lower overall costs and better life-cycle performance. The investment and effort were rewarded: By using precast concrete, the design-builder, Hardin Construction, was able to provide the university with a more efficient building that used a smaller HVAC system, resulting in long-term energy cost savings.

Cougar Village illustrates another important fact about design-build: The expertise of suppliers and specialty manufactures is often critical to project success. DBIA recognizes this fact and will release a new Design-Build Manual of Practice chapter focusing on "Selecting Specialty Contractors" within the design-build delivery method. Available this summer, the chapter recognizes the key role that special contractors like DBIA Industry Partner Member Shockey Precast often play in supplying innovation and keeping a project on time and on budget.

Precast professionals also play important roles within the Institute itself. David Bloxom, DBIA, LEED AP, owner of Speed Fab-Crete, in Fort Worth, Texas, is a true believer in the value that design-build brings to the



The study hall at the University of Houston's Cougar Village. Photo © Aker/Zvonkovic, courtesy DBIA.






PFfieldhouse at the University of St. Thomas's Anderson Athletic and Recreation Complex, viewed from the level two concourse. Photo by Ryan Siemers, courtesy DBIA.

A/E/C industry in general, and the importance that the specialty supplier brings to design-build. Bloxom is also the chairman of Design-Build Certification Board which governs the Design-Build Institute of America's certification program.

Certification is a passion for Bloxom, who encourages his staff to pursue the DBIA credential, and has four designated professionals on his staff. "The DBIA certification program is geared toward helping you be a key player on the design-build team," says Bloxom. "As a DBIA professional, you will typically know more than other team members. Understanding the process of design-build is advantageous to the precaster because it is such a growing concept within our industry and the industry at large." Even on design-bid-build jobs, Bloxom notes understanding the design-build process help suppliers anticipate and ward off problems, as well as giving them the confidence to suggest innovations that generally lie outside the traditional process.

Whether you are an owner, a design or construction professional, or a precast manufacturer—take note: De-

sign-build project delivery has demonstrated its value and is rising in popularity in every sector. Shouldn't you know more about design-build? 

**For more information on these or other projects, visit [www.pci.org/ascent](http://www.pci.org/ascent).**

#### **About DBIA:**

Established in 1993, the Design-Build Institute of America (DBIA) is the only organization that defines, teaches and promotes best practices in design-build. Part of DBIA's central mission is teaching the effective integration of design and construction services to ensure success. Through DBIA, owners learn that communicating knowledge and data relevant to the project via performance based requirements, firmly establishing its own role and responsibilities, and verifying that the team it selects clearly understands their specific tasks and responsibilities are the primary means to ensure a successful project.

#### **Designated Design-Build Professional**

Developed by and for construction and design professionals the Designated Design-Build Professional™ certification is the premier credential for design-build practitioners. The DBIA certification establishes an accepted and recognized standard of design-build knowledge and experience. By pursuing certification through education and by passing a rigorous examination, design-build practitioners and suppliers demonstrate that they understand and can implement established best-practices in design-build project delivery. To learn more, visit [www.dbia.org](http://www.dbia.org).